AMENDMENTS TO THE DRAWINGS:

Applicant submits herewith five (5) sheets of replacement drawings for the present application. The Examiner respectfully is requested to acknowledge receipt of and approve the replacement sheets.

Attachments: Replacement Sheets (5)

REMARKS

Claims 1-4 and 11-21 are presently pending in the application.

Claims 5-11 stand withdrawn as being directed to a non-elected species of the invention. No claim has been deemed generic to all species. Claims 5-11 have been canceled without prejudice or disclaimer to filing a divisional application directed to the subject matter of these claims.

New claims 11-21 have been added to define more clearly and particularly the features of the present invention.

To speed prosecution, independent claim 1 has been amended to define more clearly and particularly the features of the present invention. Claim 2 also has been amended merely to make a minor editorial change on conformance with U.S. Patent practice.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicant specifically states that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 1-4 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Tanabe, et al. (U.S. Patent No. 6,735,230).

These rejections are respectfully traversed in the following discussion.

I. THE CLAIMED INVENTION

The claimed invention relates to a group III nitride compound semiconductor light-emitting device including a semiconductor laminate portion which includes a light-emitting layer and a groove formed in the semiconductor laminate portion so as to extend from a light emission observation surface of the semiconductor laminate portion to reach at least the light-emitting layer.

The present invention uses the light emitted laterally from the groove of the device and improves the total light-emitting efficiency or light emission of the device by use of the laterally emitted light (e.g., see specification at page 3, lines 8-12).

II. THE PRIOR ART REJECTION

Claims 1-4 stand rejected under 35 U.S.C. §102(e) as being anticipated by Tanabe.

As an aside, Applicant notes that Tanabe is based on PCT Application No. PCT/JP99/04904, which was filed on September 9, 1999 (i.e., prior to November 29, 2000) and published (in the Japanese language) on March 23, 2000. Also, the § 371 completion date is March 8, 2001. Thus, the U.S. Patent to Tanabe could be removed as prior art under 35 U.S.C. § 102(e) by perfecting Applicant's claim to foreign priority because the § 371 completion date of March 8, 2001 of the U.S. Patent to Tanabe is after the foreign priority date of the present application, which is July 10, 2000.

However, since the Publication of the PCT Application to Tanabe on March 23, 2000 likely would be available as prior art under 35 U.S.C. § 102(b), and since Applicant believes that Tanabe clearly does not disclose or suggest all of the features of the claimed invention, Applicant respectfully traverses this rejection for the following reasons. Applicant reserves the right to remove the U.S. Patent to Tanabe as prior art by perfecting Applicant's claim to foreign priority, at a later date.

With respect to the present Office Action, the Examiner alleges that Tanabe teaches the claimed invention. Applicant respectfully submits, however, that there are elements of the claimed invention which clearly are not disclosed or suggested by Tanabe. Therefore, Applicant traverses this rejection.

Independent claim 1

For example, the Examiner alleges that Tanabe discloses a semiconductor laminate portion (which the Examiner compares to the semiconductor lamination section 12 in Figure 14 of Tanabe) including a light-emitting layer (which the Examiner compares to the light emitting layer forming portion 11 in Figure 14 of Tanabe) and a groove (which the Examiner compares to the stripe groove 18 in Figure 14 of Tanabe) formed in said semiconductor laminate portion (e.g., 12) so as to extend from a light emission observation surface of said semiconductor laminate portion to reach at least said light-emitting layer (e.g., 11). However, Applicant respectfully disagrees with the Examiner's position.

Claim 1 defines a group III nitride compound semiconductor light-emitting device including:

> *a semiconductor laminate portion including a light-emitting layer; and*
>
> *a groove formed in said semiconductor laminate portion so as to extend from a light emission observation surface of said semiconductor laminate portion to reach at least said light-emitting layer...* (emphasis added).

Accordingly, the present invention uses the light emitted laterally from the device and into the groove and improves the total light-emitting efficiency or light emission of the device by use of the laterally emitted light (e.g., see specification at page 3, lines 8-12).

In comparison, Tanabe merely discloses a semiconductor light emitting device using a Group III nitride compound semiconductor, which is of a vertical type that allegedly allows electrodes to be taken out from both of the upper and lower surfaces of a chip, has superior crystalline properties with high light emitting efficiency, and exhibits cleavage, is obtained.

Therefore, according to Tanabe, it allegedly is possible to easily mount a LD chip on a sub-mount having a good thermal conductivity, and consequently to prevent a reduction and degradation in the light emitting efficiency (differential quantum efficiency) due to heat (e.g., see Tanabe at Abstract).

Thus, Tanabe is completely different, both structurally and functionally, from the claimed invention and does not solve, address, or even mention the problems solved by the claimed invention.

In fact, the groove 18 of Tanabe has nothing to do with reflecting light, but instead, the stripe groove 18 of Tanabe is used to expose the semiconductor layer as a seed to grow the semiconductor layer on the current restriction layer 17 (e.g. see Tanabe at column 32, lines 26-36, and lines 41-54).

Contrary to the Examiner's position, Tanabe does not disclose or suggest "*a groove formed in said semiconductor laminate portion so as to extend from a light emission observation surface of said semiconductor laminate portion to reach at least said light-emitting layer*" as claimed.

Instead, as clearly shown in Figure 14 of Tanabe, the alleged groove 18 is formed in the current constriction layer 17, which clearly is not comparable to the claimed "*light emission observation surface*", as defined by claim 1. Indeed, the current constriction layer 17

of Tanabe is formed under the p-type contact layer 7 and the p-side electrode 10. Further, the p-type contact layer 7 fills in the groove 18 formed in the current constriction layer 17. Hence, the current constriction layer 17 clearly is not a light emission observation surface, as claimed by claim 1.

Accordingly, the groove 18 clearly is not "*formed in said semiconductor laminate portion so as to extend from a light emission observation surface of said semiconductor laminate portion to reach at least said light-emitting layer*" as claimed in claim 1.

For the foregoing reasons, Applicant respectfully submits that Tanabe clearly does not disclose or suggest all of the features of the claimed invention, and requests that the Examiner withdraw this rejection.

As mentioned above, the exemplary aspects of the present invention use the light emitted laterally from the device and into the groove and improve the total light-emitting efficiency or light emission of the device by use of the laterally emitted light (e.g., see specification at page 3, lines 8-12).

Moreover, according to the exemplary aspects of the present invention, a p-type electrode and an n-type electrode are formed in a same surface side of the semiconductor laminate portion, and light emitted from the side surface of each of the blocks goes out to the light emission observation surface side through the groove. Thus, according to the exemplary aspects of the present invention, light extraction efficiency can be improved (see specification at page 17, lines 2-4 and 9-15; see also Figures 4 and 5).

Further, since the auxiliary electrode extends from the p-type electrode to each block, a current can be supplied to each block uniformly. Therefore, the claimed invention can achieve uniform light emission on the light emission observation surface.

Incidentally, in the conventional light emitting devices, an n-type layer has a larger resistance than a p-type layer. Thus, to achieve uniform light emission, resistance between the n-side and the p-side is required to be balanced by increasing the p-side resistance.

In the exemplary aspects of the present invention, resistance is offered in the extended auxiliary electrode. At this point, since the groove is formed between the blocks, the claimed invention is capable of extending the auxiliary electrode longer than with the conventional devices. That is, claimed invention is capable of adjusting the p-side resistance so as to easily

balance the resistance between the n-side and p-side.

In contrast, the conventional light emitting devices do not disclose or suggest these features, and indeed, do not even contemplate such features.

Therefore, to speed prosecution (and not for overcoming the Tanabe reference, which does not disclose or suggest the features of the claims for the reasons set forth above), Applicant amends independent claim 1 to define more clearly and particularly the novel and unobvious features of the present invention.

The prior art cited by the Examiner clearly does not disclose or suggest all of the feature of the claimed invention, as clearly and particularly defined by independent claim 1.

Dependent Claims 2-4

Applicant respectfully submits that dependent claims 2-4 are patentable over Tanabe by virtue of their dependency from claim 1, as well as for the additional features recited therein.

For example, with respect to dependent claim 4, Applicant respectfully disagrees with the Examiner's position.

That is, the Examiner alleges that Tanabe discloses "*an n-type seat electrode-forming surface is provided at a level equal to a bottom of the groove (Fig. 14 (9- the n-type electrode is at the bottom of a second groove)*" (see Office Action at page 3, lines 12-14; emphasis added).

However, claim 4 clearly does not recite "*a second groove*" as alleged by the Examiner, but instead, recites that "*an n-type seat electrode-forming surface is provided at a level equal to a bottom of said groove*" (emphasis added).

That is, the claimed phrase "*said groove*" refers to the same groove formed in the semiconductor laminate portion as define by claim 1, not a *second* or *different* groove, as alleged by the Examiner. Clearly, the alleged second groove upon which the n-side electrode 9 is formed is not the same as the stripe groove 18, which the Examiner relies on for the claimed "*groove*", as recited in claim 1.

Thus, Applicant respectfully submits that the Examiner's position clearly is erroneous. Therefore, Applicant submits that claim 4 is patentable over Tanabe by virtue of its dependency from claim 1, as well as for the additional features recited therein.

For the foregoing reasons, Applicant submits that there are elements of the claimed invention, as defined by claims 1-4, which clearly are not disclosed or suggest by Tanabe.

Thus, Tanabe clearly does not anticipate, or for that matter render obvious, the claimed invention and the Examiner respectfully is requested to withdraw this rejection.

III. NEW CLAIMS

New claims 12-21 have been added to provide more varied protection for the present invention. Applicant submits that new claims 12-21 are patentable over the cited reference for at least somewhat similar reasons as those set forth above, with respect to independent claim 1 and dependent claims 2-4.

IV. FORMAL MATTERS AND CONCLUSION

Applicant respectfully notes that the Examiner has not acknowledged receipt of, or approved, the drawings filed on July 10, 2001. However, Applicant submits herewith a complete set of replacement sheets for Figures 1-5 (5 sheets), and requests that the Examiner accept and approve the replacement sheets.

In view of the foregoing, Applicant submits that claims 1-21, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: April 12, 2005

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